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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,838	04/16/2004	Satoko Shitagaki	0553-0406	1744

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EXAMINER
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GRAY, JILL M

ART UNIT	PAPER NUMBER
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1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/07/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/826,838

Applicant(s)

SHITAGAKI ET AL.

Examiner

Jill M. Gray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/16/04, 9/17/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of the compound of formula (2) wherein X and Y are selected from formula (3), and the ultimate species being that of formula (10), claim 4 in the reply filed on November 6, 2006 is acknowledged.

Applicants' have withdrawn claim 3. However, general formula (6), when X and Y are formula (7) reads on the elected compound and ultimate species. Accordingly, claim 3 has been included as the elected embodiment. If this modification is incorrect, applicants' are invited to indicate so in their response.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, claims 1-3 are indefinite because the description of the various substituents is contained within parenthetical expressions. This renders these claims indefinite because the use of parenthesis provides ambiguity as to whether this material constitutes claim limitations or not. Also, in claims 1-4 the language of "general formula" is indefinite and does not provide a clear positive recitation of the compound being claimed. It is suggested that applicants delete the word "general".

***Claim Rejections - 35 USC § 102***

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-2, 9 and 12-13 are rejected under 35 U.S.C. 102(a) as being anticipated by “Quinoxalines Incorporating Triarylaminines: Potential Electroluminescent Materials with Tunable Emission Characteristics”, Thomas et al, (hereinafter referred to as “Thomas”).

Thomas teaches a quinoxaline derivative having the general formulas (1) and (2). See Scheme 1. In addition, Thomas teaches that his quinoxaline derivative is used in the production of light emitting devices, wherein layers with hole-transporting and emitting and electron-transporting properties are sandwiched between a pair of electrodes, as required by claims 9, and 12. See page 2796 and 2799. Furthermore, Thomas teaches that these quinoxalines are suitable for the fabrication of organic light-emitting diodes (OLEDs). See page 2796. It should be noted that OLEDs are semiconductor devices, as required by claim 13.

Accordingly, the teachings of Thomas anticipate the invention as claimed in present claims 1-2, 9, and 12-13.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10-11 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Quinoxalines Incorporating Triarylamines: Potential Electroluminescent Materials with Tunable Emission Characteristics", Thomas et al, (hereinafter referred to as "Thomas") in view of Thompson et al, 6,303,238 B1 (Thompson).

Thomas is as set forth above but does not teach the addition of a phosphorescent material.

Thompson teaches organic light emitting devices in which emission is obtained via a phosphorescent decay process. Thompson further teaches that the OLED is doped with a phosphorescent material is elected such that the emission from the material comes from the triplet state and results in increased efficiency of the OLED. See abstract, column 4, lines 9-22 and column 5, lines 48-67. Regarding claim 10, it would have been obvious to modify the teachings of Thomas by adding a phosphorescent material as taught by Thompson in order to increase the efficiency of OLED. Thompson also teaches that the emission is narrow and centered at 645 nm, which is within applicants' range as set forth in claim 11. See column 6, lines 56-57. Regarding claims 14-17, Thompson teaches that OLEDs can be used in the formation of electronic devices such as computers and televisions. Accordingly, it would have been obvious to one of ordinary skill in this art at the time the invention was made to use the OLED of Thomas in the formation of electronic devices such as a computer or television.

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No claims are allowed.

**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jill M. Gray  
Primary Examiner  
Art Unit 1774

jmg